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COAL RESERVES IN GREENE COUNTY, PENNSYLVANIA

By

John F. Reese

Introduction.

In connection with the "Introduction to the Bituminous Coal Fields of Pennsylvania" now being prepared for publication by the Geological Survey of Pennsylvania, coal reserves of the bituminous fields are being computed by Mr. John F. Reese. In order to render this information available at once without waiting for the uncertain date of the publication of the report, an abstract of Mr. Reese's figures for Greene County is given herewith. All of the information readily available at this time has been used in the computation, which followed the methods used by the Land Classification Board of the United States Geological Survey in its valuation of the public coal lands. The results are given by beds for each township. For some beds and for some areas the data are abundant and the results entirely reliable. For other beds and areas the data are meager and the results subject to revision as additional data are obtained. All of the data used and the computation sheets are permanently filed so that modifications of the original figures due to the securing of additional data can be made readily.

The figures presented are preliminary and subject to correction for any area when that area shall be studied in detail. In the meantime critical examination of the figures is invited in order that the results may be made as accurate as possible. To that end the Survey will welcome every bit of data not now in its possession. Records of drillings and other data will be kept strictly confidential if so desired, although the Bureau naturally prefers to be able to use data freely.

George H. Ashley.

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Coal Beds.

Greene County contains the greatest coal reserve in the State. Five beds are of economic interest and have been used in calculating the quantity of coal in the ground. These beds in order of present importance are the Pittsburgh, Sewickley, Waynesburg, Washington, and Freeport.

Pittsburgh Coal. The mining and prospecting of the Pittsburgh coal has furnished measurements of its thickness in several places and with data from contiguous areas in West Virginia, makes possible a fairly reliable computation of the quantity. The Pittsburgh coal underlies all the county except a narrow strip on Monongahela River.

Sewickley Coal. The Sewickley coal underlies practically the whole county and is exposed only in the southeast part and at the mouth of Ten Mile Creek. Mines on the outcrop and data from adjacent parts of West Virginia furnish the only data for computing the tonnage. An average of 20 inches has been used in townships for which no measurements can be obtained. This coal is thickest in the southeast part of the county and thins rapidly toward the north and west.

Waynesburg Coal. Numerous sections from the extensive outcrop of the Waynesburg coal and data from reports of the West Virginia Geological Survey give a fairly accurate basis for computing the thickness of this coal in any township. This bed is broken by many partings and at present is used only locally. It will not be mined extensively for commercial use until railroads are built into the county or the Pittsburgh and Sewickley beds are nearer exhaustion.

Washington Coal. A fair amount of data regarding the Washington coal is had from measurements of the outcrop in the eastern part of the county and from its occurrence in West Virginia on the south and west.

This coal is mined for local domestic use throughout the area where it outcrops. The bed is badly broken by partings, is very dirty, is mined only because of local convenience, and until necessity demands will not be utilized much more extensively than now. A thickness of 2 feet has been used for computing the quantity in those townships for which no measurements are available.

Freeport Coal. Little is known of the Freeport coal in Greene County except that the records of churn drill holes show coal at its horizon. The thickness along Monongahela River is known from records of core drill holes. This coal lies about 600 feet below the Pittsburgh coal; it does not outcrop and so is assumed to underlie the whole county at considerable depth and with unbroken continuity. In computing the quantity a thickness of 30 inches has been used in all townships. The recoverable quantity has been estimated at 50 per cent of the whole, from which has been deducted 15 per cent for loss in mining. This bed is ranked fifth because its regularity and extent are wholly assumed. Should future prospecting show it thicker and better than has been assumed, this coal may eventually be mined in spite of its great depth, and rank higher in economic value than the dirty but more accessible Waynesburg and Washington coals.

Other coal beds than these five are mined for local use but as they are not important, and little is known of their extent and thickness, they have not been included in the computation of the reserves.

Method of Computing Reserves.

The following method was used in computing the coal reserves:

A base map for each coal bed was made by tracing its outcrop from the quadrangle maps made by the U. S. Geological Survey. All

available measurements of a coal bed, gathered from Federal and State reports, mine maps, core drill records and personal inspections, were plotted on the map of that coal bed at the locality represented. By studying the distribution of the figures, areas of equal thickness were platted, and by means of a planimeter, an instrument for measuring plane areas, the area of each coal bed in each township was measured. For calculating the quantity of coal in any area 90,000 short tons per inch per square mile was used.

Areas from which coal has been removed were determined from mine maps and platted to scale on the base maps. The same method as above was used for computing the quantity of coal extracted.

Having calculated the quantity of coal originally contained within the area of any bed and subtracted the quantity already mined out, the writer determined from engineering experience the probable percentage of each bed which could be recovered in different localities. This varies from 50 to 100 per cent, depending on the thickness and character of the bed. The quantity of coal computed to be in any bed, multiplied by the assumed percentage of recovery, less 15 per cent for loss in mining, gives the estimated recoverable tonnage.

Coal Reserves.

The result of computing the coal reserves in Greene County based on the latest maps, engineering data, and methods is shown in the following tables:

Summary of Recoverable Coal in Greene County in Short Tons.

Township	Pittsburgh	Sewickley	Waynesburg	Washington	Freeport	Total
Allegheny	106,475,760	41,922,000	59,180,400	50,306,400	31,441,500	289,826,060
Center	224,206,200	76,030,000	141,827,175	93,636,000	58,522,500	596,221,875
Cumberland	245,342,845	77,838,750	114,255,425	18,360,000	46,475,750	502,270,770
Dunbar	166,906,170	99,488,250	36,762,075	9,180,000	36,949,500	349,285,995
Franklin	194,598,740	65,112,500	124,516,325	55,080,000	47,277,000	484,184,565
Gilmore	94,847,760	31,557,125	56,763,000	41,126,400	25,704,000	249,978,285
Greene	116,246,340	40,738,160	55,978,400	14,688,000	22,032,000	247,682,900
Jackson	119,034,000	45,370,000	85,068,000	55,244,000	53,277,500	354,993,500
Jefferson	127,937,070	41,248,800	61,419,930	16,524,000	26,277,750	273,407,550
Monongahela	97,711,920	49,778,550	15,353,550	5,672,000	20,999,250	187,515,270
Morgan	148,525,220	41,310,000	80,588,925	20,196,000	51,212,000	521,850,145
Morris	156,125,025	55,692,000	114,971,850	66,830,400	41,769,000	435,388,275
Perry	179,478,180	114,300,945	121,059,720	36,720,000	35,113,500	486,672,345
Rich Hill	228,276,000	95,024,000	167,658,275	14,518,850	6,9768,000	573,225,125
Springhill	125,379,200	46,512,000	59,394,600	55,814,400	34,884,000	319,684,200
Washington	123,677,550	41,310,000	92,947,500	49,572,000	30,982,500	338,489,550
Wayne	199,106,550	99,410,220	141,525,000	75,276,000	47,047,500	562,365,270
Whiteler	179,781,120	59,850,650	120,808,800	60,404,400	37,752,750	458,577,720
Total	2,831,453,650	1,119,453,950	1,647,858,950	735,148,850	677,484,000	7,011,399,400

Coal Reserves in Greene County, in short tons.

Bed	Original deposit	Mined out	Recoverable
Pittsburgh	3,919,485,600	39,420,000	2,831,453,650
Bewickley	1,393,407,000	2,700,000	1,119,453,950
Waynesburg	2,557,242,000	270,000	1,647,858,950
Washington	865,880,000	100,000	735,148,850
Freeport	1,594,080,000	----	677,484,000
Total	10,330,094,600	42,490,000	7,011,399,400

The table on page 5 gives the estimated recoverable tonnage by beds and townships. The figures have been given as computed. It should however be distinctly understood that while the acreage of each of the beds has been accurately computed, the reliability of the average thickness of the coals used in the computation of tonnage decreases for the several beds given from left to right and for the townships from east to west or from northeast to southwest. Thus, while the figures for the Pittsburgh bed are conservative and probably reliable, the figures for the Freeport coal may be much too small or many times too large.

Detailed tables of the coal reserves in each township have been prepared and will appear in printed form in the report now being written on the bituminous coal fields of the State. They can be consulted in the office of the Survey; or figures for a single township will be sent on request.

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